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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,586	09/28/2001	Kristopher Frutschy	219.40442X00(ATSK)	2404

20457 7590 03/28/2003

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EXAMINER

PAREKH, NITIN

ART UNIT PAPER NUMBER

2811

DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,586

Applicant(s)

FRUTSCHY ET AL.

Examiner

Nitin Parekh

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 10 and 20-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

Election/Restriction

1. Applicant's election with traverse of Group I, claims 1-56 in Paper No. 7 is acknowledged. The traversal is on the ground(s) that in the requirement for an election, Groups I and II relate to a perimeter frame having an electrical structure connectable to a substrate. This is not found persuasive because referring to the restriction requirement set forth in the Office Action paper no.5, it clearly shows that the alternative method proposed by the examiner would be distinct from the process claimed. Additionally, the search is not coextensive as evidenced by the different fields of search for the process and product as cited in the previous restriction requirement. Furthermore, Applicant has not provided a convincing argument that the materially different processes would not be suitable in producing the claimed device. The requirement is still deemed proper and is therefore made FINAL.

2. Applicant's election with traverse of device claims 1-9 and 11-19, directed to species A (Embodiment I) in Paper No. 7 is acknowledged.

The traversal is on the ground(s) that the restriction requirement based on species is improper. This is not found persuasive because referring to the restriction requirement set forth in the Office Action paper no.5, it clearly shows that the claims 1-58 are directed to distinct species as shown in the embodiments of Fig. 1-15 requiring an extensive and burdensome search. The species restriction requirement is still deemed proper and is therefore made FINAL.

Oath/Declaration

3. The oath/declaration filed on 09/28/01 is acceptable.

Drawings

4. The formal drawings filed on 09/28/01 are acceptable.

Information Disclosure Statement

5. If applicant is aware of any relevant prior art, he/she requested to cite it on form PTO-1449 in accordance with the guidelines set forth in M.P.E.P.

609.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-6 and 11-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Dibene II et al. (US Pat. 6452113).

Regarding claim 1, Dibene II et al. disclose a perimeter board frame/stiffener frame and a substrate assembly (Fig. 6B and 9) comprising:

- the perimeter frame (602/612 in Fig. 6B and 9) attachable to a perimeter of the substrate (700/702 in Fig. 7 and 9) on one side of the perimeter and die side of the substrate (see top side of 700 in Fig. 9)
- the perimeter frame including an electrical structure having conductive interconnects and conductive surfaces (612 A/B/C in Fig. 6A) electrically connectable to the substrate (Col. 8, line 37-47)
- the electrical structure providing dual functions including a mechanical and electrical functions where the mechanical function includes the conductive interconnects providing a coupling/rigidity/support for the substrate (Col. 8, line 50-60) and mechanical fasteners (802 in Fig. 9) providing the predetermined/desired rigidity/stiffening (Col. 9, line 32-37)
- the electrical structure comprising a wiring/conductive paths including a ground and power connections (Col. 8, line 60), and
- the frame/board being adapted to support an integrated heat sink- HIS (1000 in

Fig. 10-11B) , the assembly being used for power supply applications for the IC/microprocessor and being capable of withstanding temperatures and providing thermal management/dissipation during normal IC operation (Col. 1; 3 and 4-16)

(Fig. 6A-12; Col. 7, line 50- Col 10, line 25).

Regarding claim 2, as explained above for claim 1, Dibene II et al. disclose the electrical structure comprising at least one of a ground, power and capacitor connections (Col. 8, line 60).

Regarding claim 3, Dibene II et al. al. disclose the frame/board comprising:

- a plurality of layers, plated through holes/vias, conductive pads, thermally and electrically conductive surfaces, etc. (606, 610, 616A/B, etc. in Fig. 6A/B; Col. 8, line 3-50), and
- a single or a plurality of segregated/intermingled portions/sections having thermally and electrically conductive portions/sections being separated by a dielectric portion/section (612 A/B and 612 C respectively in Fig. 6A; Col. 8, line 37-47; Col. 9, line 1-4).

Regarding claim 4, Dibene II et al. al. disclose an integrated circuit (IC)/microprocessor being flip chip (FC) bonded having solder ball grid/array (Col. 7, line 20-25) and the substrate being an IC- printed circuit board (IC-PCB) carrier package having a

configurations such as built-up multilayer (BML), pinned grid array- PGA (Fig. 9), ceramic land grid array (CLGA), etc. (Col. 9, line 10; Col. 7, line 40).

Regarding claim 5, as explained above for claim 1, Dibene II et al. al. disclose the assembly/package being PGA (Fig. 9).

Regarding claim 6, as explained above for claim 4, Dibene II et al. al. disclose the package being a FC-BGA.

Regarding claim 11, Dibene II et al. teach substantially the entire claimed structure as applied to the claim 1 above, including the board frame/stiffener frame being attached to provide predetermined stiffening.

Regarding claim 12, Dibene II et al. teach substantially the entire claimed structure as applied to the claims 1, 2 and 11 above, including the electrical structure having at least one of a ground, power and capacitor connections.

Regarding claim 13, Dibene II et al. al. teach substantially the entire claimed structure as applied to the claims 1, 3 and 11 above, including the frame comprising a plurality of electrically segregated sections.

Regarding claim 14, Dibene II et al. al. teach substantially the entire claimed structure as applied to the claims 1, 4 and 11 above, including the frame being attachable to an IC-PCB carrier package to provide predetermined stiffening.

Regarding claim 15, Dibene II et al. al. teach substantially the entire claimed structure as applied to the claims 1, 5 and 11 above, including the assembly/package being a PGA.

Regarding claim 16, Dibene II et al. al. teach substantially the entire claimed structure as applied to the claims 1, 6 and 11 above, including the package being a FC-BGA.

Claim Rejections - 35 USC § 102/103

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 7-9 and 17-19 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Dibene II et al. (US Pat. 6452113).

Regarding claim 7, Dibene II et al. teach substantially the entire claimed structure as applied to the claims 1 and 3 above, including the frame being made of an electrically conductive, an insulative/dielectric and segregated/intermingled conductive/insulative portions/sections.

Dibene II et al. fail to teach using the frame being made of one of a stamped, etched, extruded and deposited frame.

Making the frame do not distinguish over Dibene II et al. regardless of the process for forming the frame, because only the final product is relevant, not the process of making such as "molding/stamping/etching, etc. or laminating ". Note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marrosi et al., 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious

product produced by a new method is not patentable as a product, whether claimed in “product by process” claims or not . Note that applicant has the burden of proof in such cases, as the above case law makes clear. See also MPEP 706.03(e).

Regarding claim 8, Dibene II et al. teach substantially the entire claimed structure as applied to the claims 1, 3 and 7 above, including the frame sections being thermally conductive.

Regarding claim 9, Dibene II et al. teach substantially the entire claimed structure as applied to the claims 1, 7 and 8 above, including the frame being adapted to support the heat sink.

Regarding claim 17, Dibene II et al. teach substantially the entire claimed structure as applied to the claims 1, 3 and 11 above, including the frame being made of an electrically conductive, an insulative/dielectric and segregated/intermingled conductive/insulative portions/sections.

Dibene II et al. fail to teach using the frame being made of one of a stamped, etched, extruded and deposited frame.

Making the frame do not distinguish over Dibene II et al. regardless of the process for forming the frame, because only the final product is relevant, not the

process of making such as “molding/stamping/etching, etc. or laminating “. Note that a “product by process” claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marrosi et al., 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a “product by process” claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in “product by process” claims or not . Note that applicant has the burden of proof in such cases, as the above case law makes clear. See also MPEP 706.03(e).

Regarding claim 18, Dibene II et al. teach substantially the entire claimed structure as applied to the claims 1, 8 and 11 above, including the frame sections being thermally conductive.

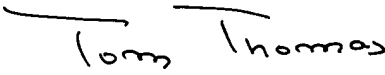
Regarding claim 19, Dibene II et al. teach substantially the entire claimed structure as applied to the claims 1, 9 a and 11 above, including the frame being adapted to support the heat sink.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722, 703-308-7724 or 703-872-9318 (Right FAX) for regular communications; 703-872-9310 (Right FAX) for After Final communications and 703-872-9310 (Right FAX) for customer service.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Nitin Parekh

NP
03-21-03


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